

MicroBooNE Electronics Infrastructure Status

- •PMT HV Crate at PAB w/ Mini-DAQ
- Cable Mapping and Rack Layouts
- TPC PS Monitoring
- Questions
- •Plans

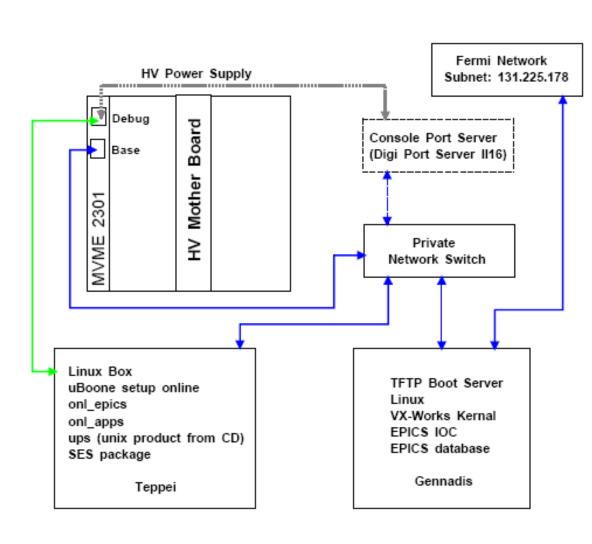
PMT Test Stand



- A demonstration of a DZero HV crate was conducted last week using EPICS and DZero operations guis.
- □ This HV crate (in a mini rack) was moved to PAB. Crate contains 8 channels of +2kV/3mA T4 type pods.
- A MVME2301 controller was borrowed from CDF to control the HV pod mother board.
- A 'Mini-DAQ' will be constructed at PAB to be used as a test bed for integrating hardware into the EPICS environment and developing operations monitoring and control guis.

Mini-DAQ @ PAB



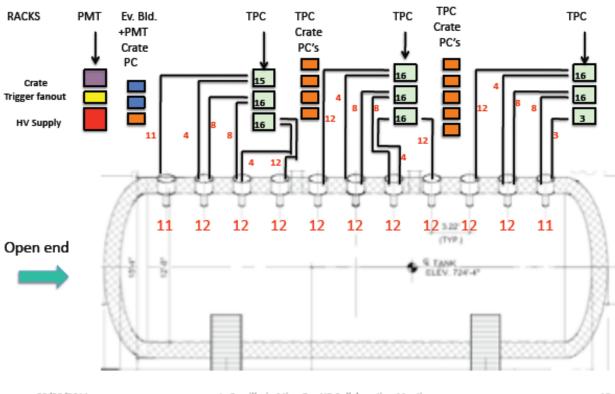


- Borrowing a network switch from DZero until ours arrives.
- Have a Linux box and Boot server.
- Temp. using serial port to monitor boot sequence.
- Redmine is the versioning system being used to keep track of our Applications and Configurations files.
- Will be used to test PMT splitter circuit and LV PS

First pass at mapping



A possible rack layout to discuss with Installation (Linda). Relative position of racks (NOT to scale)



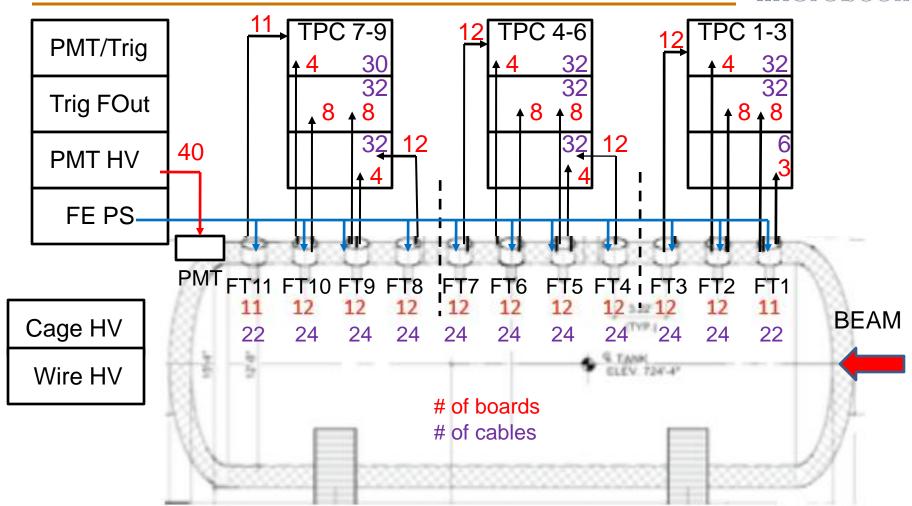
02/25/2011

L. Camilleri - MicroBooNE Collaboration Meeting

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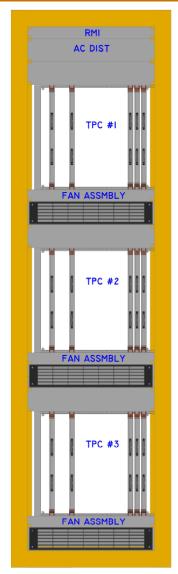
Cable Mapping

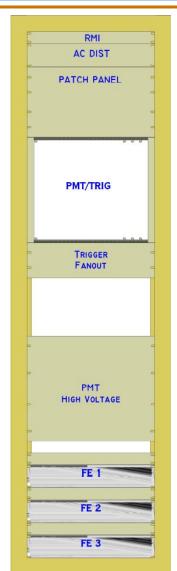


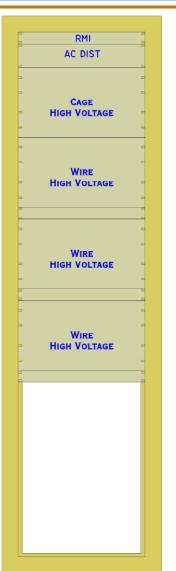


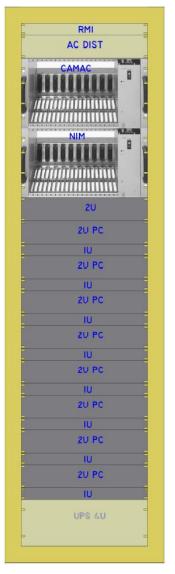
Are all TPC signal cables the same length, 20 meters?

Rack Layouts:TPC - PMT/TRIG - HV - DAQ









MicroBooNE Collaboration Meeting
L. Bagby

Questions??



- Are we monitoring the voltage and current on the PS for the TPC crates?
 - Since we are operating the experiment at a remote location, I suggest we monitor.
 - If we stay with the VICOR solution, there will be some engineering costs to develop the interface with the control system.
 - VICOR: 6 units, 2 units per rack, 3 crates per rack \$20,586
 - Another option would be to purchase Wieners which already have an Ethernet interface and interlock build into the system.
 - WIENER: 9 units, 2-3 units per rack, 2-3 crates per rack \$59,895 w/4 yr warranty
 - \$55,575 w/o front panel display, CAN-bus interface, 4 yr warranty.
 - Will it cost \$39,309 to design Vicor interface → ethernet and how long will it take?

Questions??



- □ Where do we want the Accelerator CAMAC controls rack?
 - This rack provides the timing signals (Beam Spill) for the trigger.
 - How many timing signals do we need---5?
 - Have to understand how to get signals from building side to detector side.
 - Since CAMAC is compatible with the various NIM signals (TTL,NIM,ECL) we could use differential ECL from the 'Alcove/Shed' area to a NIM bin in the PMT/Trigger rack on a REALLY good cable (air core heliax).
 - What type of input logic level does the Trigger card expect?
 - Obtain cable quote.

HELIAX coaxial cables and connectors minimize intermodulation generation by using solid conductors. They have a solid corrugated copper outer conductor to protect against electromagnetic interface and radio frequency interference (EMI and RFI).

They also offer excellent phase stability over temperature variations and with bending.



Plans



- PMT Test Stand.
 - Get Mini-DAQ running.
 - Test Splitter circuit per single-line drawing with real cable lengths.
 - Modify pilfered software (configuration/control/monitoring) for PMT needs.
 - Attach GPIB device to simulate front-end LV PS (Agilent 6651A-J03) and develop software tools.
- □ Define TPC wire HV supply—DZero HV System???
 - Being reviewed—nice to have common equipment.
 - Bonus—software is basically done.
- Develop rack layouts in more detail.
 - HV (cage and wires), DAQ, CAMAC (timing signals ?#)
 - Understand how FE LV is distributed from PS → FT → FT.
- Establish an Interlock Matrix showing subsystem dependence.

Interlock Matrix

							Purity			
INTERLOCKS	TPC Crate LV	TPC FE LV	PMT HV	PMT Crate LV	Cage HV	Wire HV	Mon.	Other Cryo	DAQ	Rack Prot.
TPC Crate LV										temp/fire
TPC FE LV										temp/fire
Wire HV										temp/fire
Cage HV										temp/fire
PMT HV								liquid level		temp/fire
PMT/Trig Crate LV										temp/fire
Purity Mon.										
Other Cryo										
DAQ										temp/fire
VESDA										
FIRUS										

Back-Ups



PMT Single Line Drawing



